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(21) Application No. 23830/73 (22) Filed 18 May 1973

(44) Complete Specification published 31 March 1976

(51) INT. CL.<sup>3</sup> B42C 19/02(52) Index at acceptance  
B6A 21C 21D1

## (54) THREADLESS BOOK-BINDING

- (71) I, HIDEO MOGUMO of No. 127, Oaza Kome-Machi, Kokura-Ku, Kitakyushu City, Japan, a Japanese subject, do hereby declare the invention, for which I pray that a patent may be granted to me, and the article and method by which it is to be performed, to be particularly described in and by the following statement:—
- 10 This invention relates to threadless book-binding.
- In conventional books bound without using threads, a multitude of sheets are superposed one on another and their back portions are cut and aligned to one another, and the back portions of the sheets are adhesively bonded to a cover sheet. Conventional books bound without using threads have a disadvantage in that the sheets tend to become stripped from one another and from the cover sheet due to the weak construction, no matter how high the bonding ability of the adhesive agent used.
- 25 This invention has at its object the provision of a method of binding a book without using threads.
- The present invention provides a method of binding a book without using threads comprising the steps of applying a ribbon of adhesive composition to a central portion of an elongate sheet lengthwise thereof, folding the sheet at right angles to the direction of the ribbon to a suitable width from a transverse edge of the sheet, the folding step being repeated as desired, applying pressure to the central portion of the folded sheet so as to form a series of spaced aligned indentations at which the overlapped portions of the sheet are brought into intimate contact with one another; folding the folded sheet along the indentations and trimming the marginal portions of the folded sheet, and adhesively bonding the folded sheet at a back edge of

the fold line to a cover sheet.

In the drawings which show an embodiment of this invention:—

Figure 1 shows a step of applying a ribbon of adhesive composition to a lengthwise extending central portion of an elongate sheet in carrying out a method according to this invention;

Figure 2 shows a second step of the method in which the sheet is folded at right angles to the line of adhesive composition;

Figure 3 shows a third step of the method in which the sheet is folded again;

Figure 4 shows a fourth step of the method;

Figure 5 shows a fifth step of the method in which two marginal portions of a suitable number of sheets superposed one on another and folded into two identical portions are cut off; and

Figure 6 shows a sixth step of the method in which a number of cut, folded sheets brought into intimate contact with one another are adhesively bonded to a cover sheet.

In carrying out the preferred method according to the invention, a ribbon 14 of an adhesive composition is formed substantially in the central portion of an elongate sheet 1' of rectangular or other shape in the lengthwise direction thereof by means of a suitable adhesive composition applicator roller 13. The sheet is then successively folded to a suitable width from the forward end of the sheet at right angles to the ribbon 14. The sheet 1' is folded so as to enclose the ribbon 14 between the overlapped portions of the sheet. The overlapped portions are bonded to one another substantially along the central portion where the ribbon is formed, and pressure is applied to the central portions by a gear-shaped pressure wheel 15 or the like so that the overlapped portions of the

sheet may be brought into intimate contact with one another at a series of dent portions. The overlapped portions of the sheet are brought into intimate contact with one another at the base and at the same time folded into two identical portions, with the dent portions 16 presenting the appearance of a "stitch" formed by a thread. By trimming or cutting off marginal portions 7, 8, 9 and 10 from the continuously folded sheet a number of sheets connected to one another at the base can be provided. The pressure contact portion is adhered with a high bonding force at a back edge 4 to a cover sheet 3 with an adhesive composition 5. Being bound in this way, the pages are adhesively bonded to one another at the base and at the same time bonded intimately at the back to the cover sheet.

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#### WHAT I CLAIM IS:—

1. A method of binding a book without using threads comprising the steps of applying a ribbon of adhesive composition to a central portion of an elongate sheet

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lengthwise thereof, folding the sheet at right angles to the direction of the ribbon to a suitable width from a transverse edge of the sheet, the folding step being repeated as desired, applying pressure to the central portion of the folded sheet so as to form a series of spaced aligned indentations at which the overlapped portions of the sheet are brought into intimate contact with one another; folding the folded sheet along the indentations and trimming the marginal portions of the folded sheet and adhesively bonding the folded sheet at a back edge of the fold line to a cover sheet.

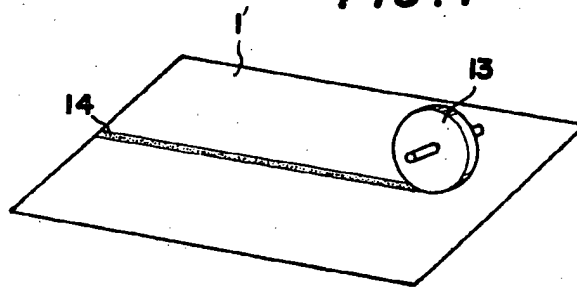
2. A method according to claim 1 substantially as hereinbefore described with reference to the accompanying drawings.

3. A book produced by a method according to either one of claims 1 and 2.

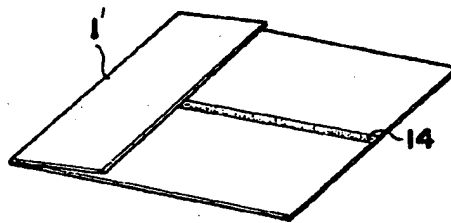
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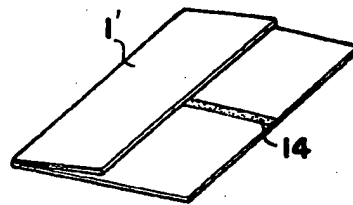
**FIG. 1**



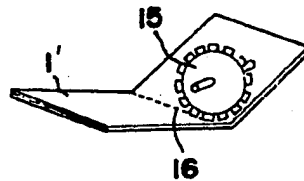
**FIG. 2**



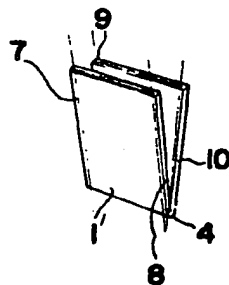
**FIG. 3**



**FIG. 4**



**FIG. 5**



**FIG. 6**

